LOUISIANA DEPARTMENT OF WILDLIFE & FISHERIES

OFFICE OF FISHERIES
INLAND FISHERIES SECTION

PART VI - B

WATERBODY MANAGEMENT PLAN SERIES

BLIND RIVER, LOUISIANA

WATERBODY EVALUATION & RECOMMENDATIONS

CHRONOLOGY

DOCUMENT SCHEDULED TO BE UPDATED ANNUALLY

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Rachel Walley, Biologist Manager, District 7

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WATERBODY EVALUATION

STRATEGY STATEMENT

Recreational

Largemouth bass, sunfish, catfish, and crappie are managed to maintain sustainable populations while providing anglers the opportunity to catch or harvest numbers of fish.

Commercial

Commercial fish species are managed to provide sustainable populations.

Species of Special Concern

Species of special concern and threatened and endangered species are managed to rebuild to self-sustaining and fishable populations.

EXISTING HARVEST REGULATIONS

Recreational

All statewide regulations apply to game fish species, see link below:

http://www.wlf.louisiana.gov/sites/default/files/pdf/publication/31743-recreational-fishing-regulations/2012_fishing__regulations.pdf

Commercial

All statewide regulations apply to commercial fish species, see link below:

http://www.wlf.louisiana.gov/sites/default/files/pdf/publication/31745-commercial-fishing-regulations/2012_commercial_fishing.pdf

Species of Special Concern

Paddlefish (*Polyodon spathula*), pallid sturgeon (*Scaphirhynchus albus*), shovelnose sturgeon (*Scaphirhynchus platorynchus*), and Gulf sturgeon (*Acipenser oxyrinchus desotoi*) inhabit the reach of the Mississippi River where Old River connects.

SPECIES EVALUATION

Recreational

Largemouth bass (*Micropterus salmoides, M. floridanus, and M.salmoides x floridanus hybrids*) are targeted for evaluation since they are a species indicative of the overall fish population due to their high position in the food chain and because they are highly sought after by anglers. Electrofishing is the best indicator of largemouth bass abundance and size distribution, with the exception of large fish.

Largemouth Bass

Catch per unit effort, relative weight and structural indices-

Spring electrofishing results indicate considerable variability of catch-per-unit-effort (CPUE) of largemouth bass following hurricanes Katrina and Gustav, 2005 and 2008 respectively (Figures 1 and 2). The storms created water quality conditions, such as low dissolved oxygen, that resulted in major fish kills. The two years following these hurricanes, the mean total CPUE for largemouth bass rebounded steadily. Stock-size fish rebounded in the spring of 2008 to 2010, while preferred-size fish increased slightly following 2007, but did not rebound following 2009. Total CPUE for 2010 greatly exceeded the long term averages for both, stock- and substock-size classes of largemouth bass as depicted in Figures 1 and 2, respectively.

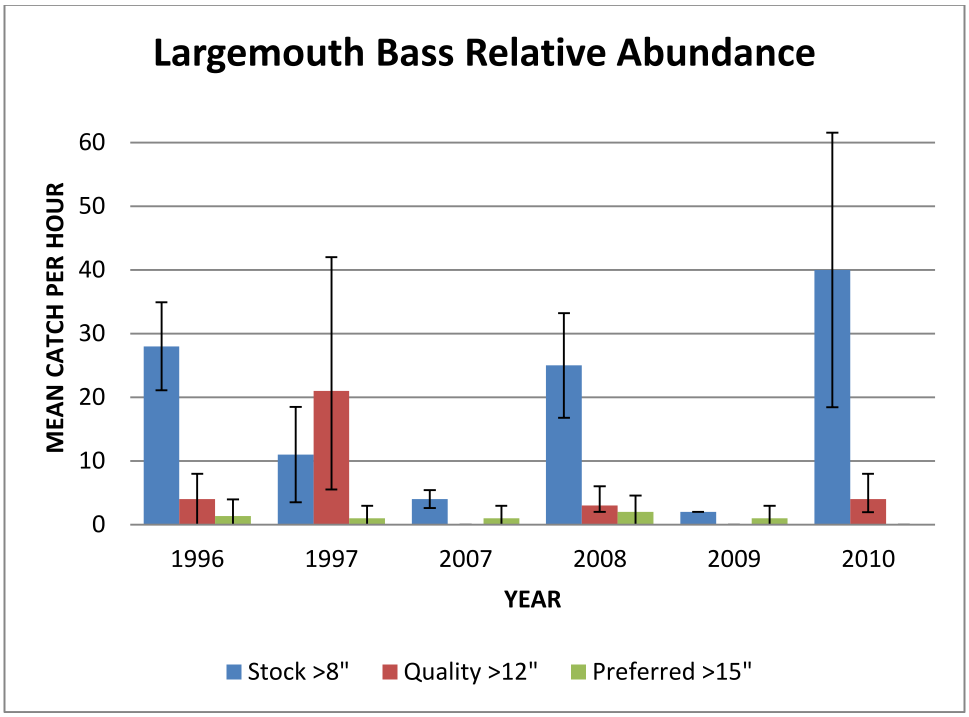

Figure 1. The mean CPUE in number per hour for stock-, quality-, and preferred-size largemouth bass on Blind River, LA, from 1996 to 2010. Error bars represent 95% confidence limits of the mean CPUE.

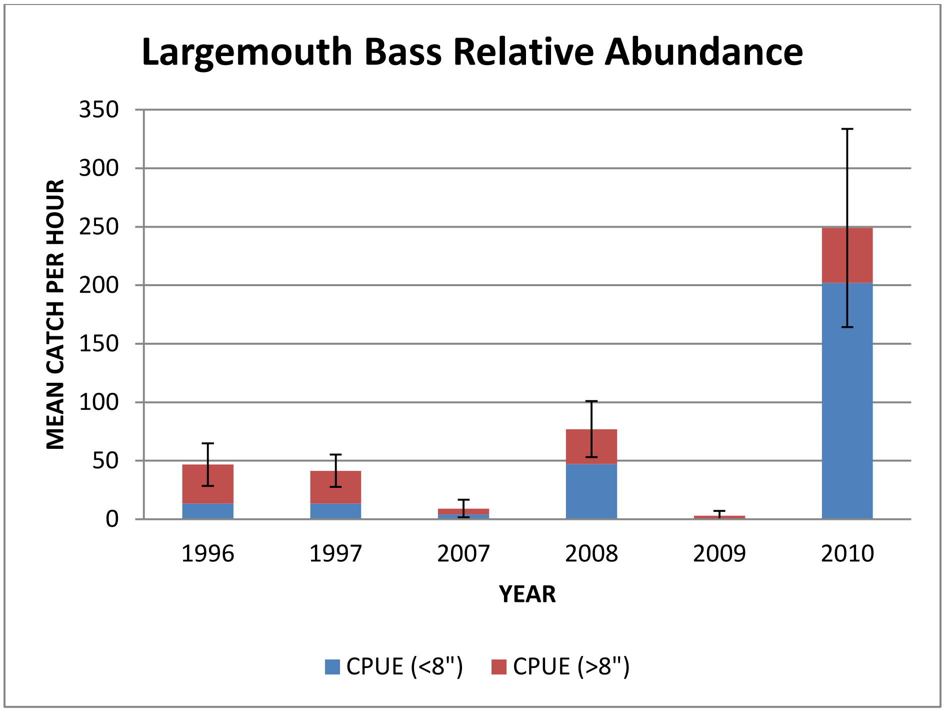

Figure 2. The mean total CPUE values for largemouth bass on Blind River, LA, from spring electrofishing samples 1996 to 2010. Error bars represent 95% confidence limits of the mean CPUE.

Proportional stock density (PSD) and relative stock density (RSD) are indices used to numerically describe length-frequency data. Proportional stock density compares the number of fish of quality-size (greater than 12 inches for largemouth bass) to the number of bass of stock-size (8 inches in length). The PSD is expressed as a percent. A fish population with a high PSD consists mainly of larger individuals, whereas a population with a low PSD consists mainly of smaller fish. For example, Figure 3 below indicates a PSD of 52 for 1997. The number indicates that 52% of the bass stock (fish over 8 inches) in the sample was at least 12 inches or longer.

$$PSD = \frac{\text{Number of bass}>12\text{ inches}}{\text{Number of bass}>8\text{ inches}} \times 100$$

Relative stock density (RSD) is the proportion of largemouth bass in a stock (fish over 8 inches) that are 15 inches (preferred-size) or longer.

$$RSD = \frac{\text{Number of bass}>15\text{ inches}}{\text{Number of bass}>8\text{ inches}} \times 100$$

Although there were increases in the overall mean CPUE's following 2007 and 2009, the size-structure indices for largemouth bass decreased in both, the proportion of quality-size and preferred-size fish (Figure 3). The size distribution comparison (length frequencies) from 2009 and 2010 spring electrofishing results show that in 2010 there were more stock-sized fish inch groups present than in 2009 (Figure 4).

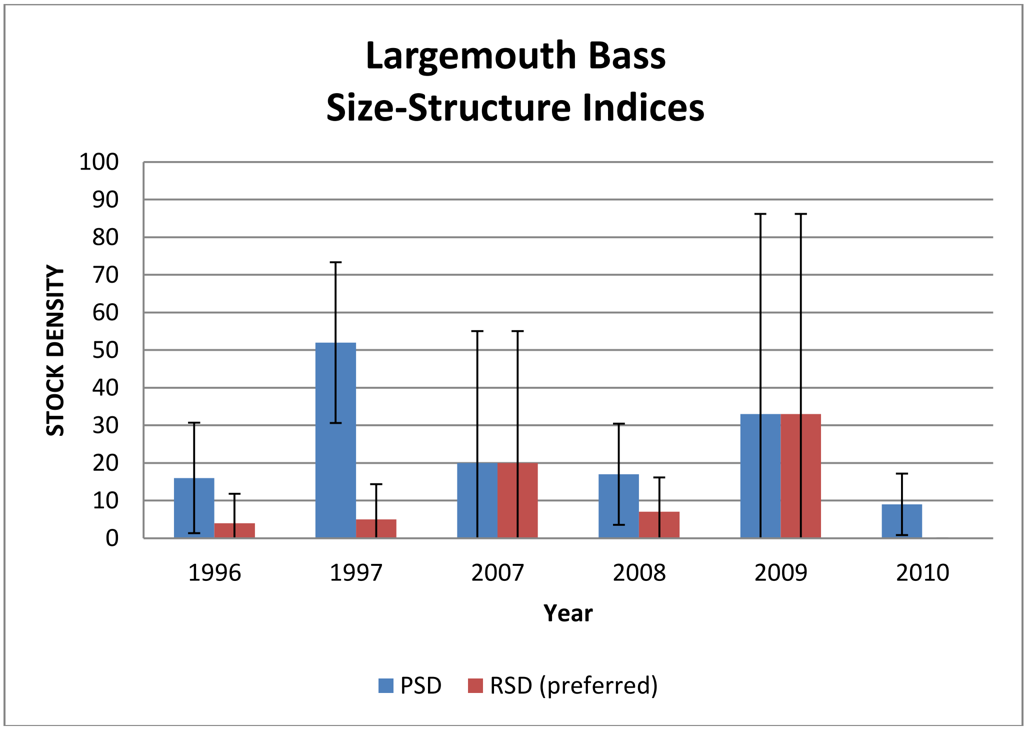

Figure 3. The mean size-structure indices (PSD and RSDp) for largemouth bass from spring electrofishing results on Blind River, LA, from 1996 to 2010. Error bars represent 95% confidence limits of the mean size-structure indices.

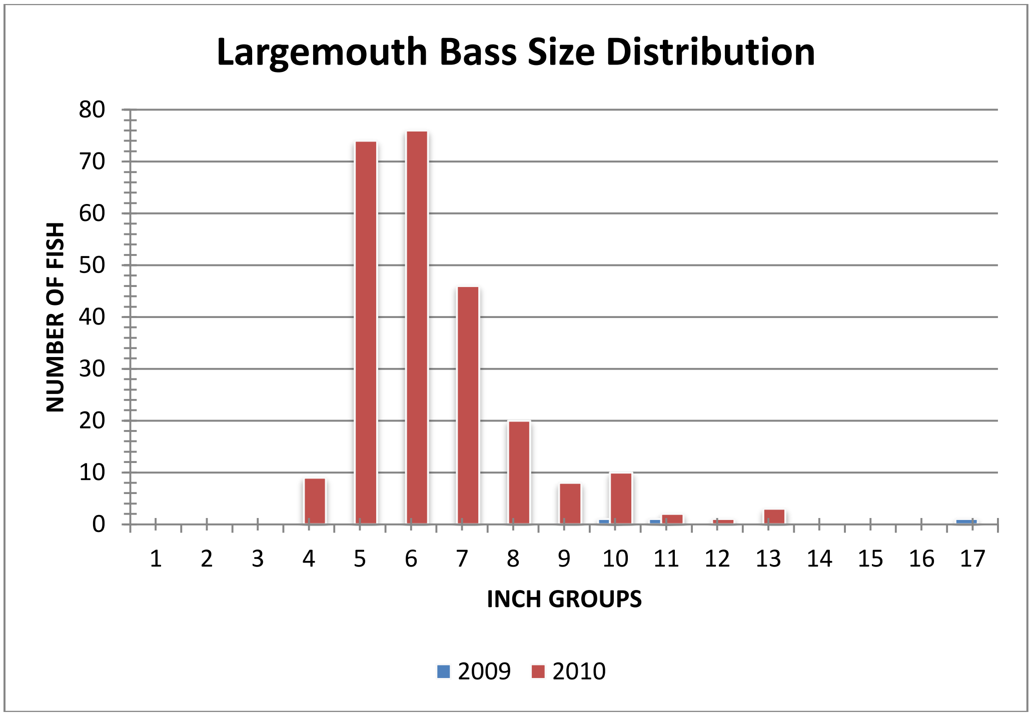

Figure 4. The size distribution (length frequencies) for largemouth bass from spring electrofishing results on Blind River, LA, from 2009 to 2010.

Stocking and Genetics

Over 435,000 Florida largemouth bass (*M. floridanus*) fingerlings have been stocked regularly into Blind River since 1995. A majority of these fish were stocked post hurricanes Katrina and Gustav, in response to public outcry over the massive fish kills that occurred following these storm events. In the post storm absence of predation and competition, the Florida largemouth bass should have become dominant in this coastal river, when in fact this species did not even become established. Genetic testing conducted in 2010 indicated that less than 1% of the Florida genome was present in the sample results (Table 1). Additionally, high CPUE's in 2010 (Figures 1 and 2), along with the genetic results, indicate that the remaining native largemouth bass population, although greatly reduced from pre-storm levels, recovered robustly and that any stocking efforts were completely unnecessary. The stocking of Florida largemouth bass in the nearby Tangipahoa River showed a similar fate; the ineffectiveness to establish this genotype during post hurricane recovery. This tenacity for recovery of native largemouth bass populations has also been noted in other coastal river systems including the Calcasieu, Mermentau and Sabine rivers in southwest Louisiana following hurricanes Rita (2005) and Ike (2008). These systems received little to no stockings of largemouth bass before and after the hurricane related fish kills, yet yielded record CPUE's within two years into recovery. These observations suggest that native coastal populations of largemouth bass (and other indigenous fish species) have adapted to these periodic storm events and rapid recovery is part of the natural selection process.

Table 1. Results of 2010 genetic testing for the Florida genome in largemouth bass from Blind River, LA.

Number of fish	% Northern	% Hybrid	% Florida
206	93.7	5.8	0.5

Table 2. Florida largemouth bass stockings into Blind River, LA from 1995 – 2009.

Florida LMB Stocking	
Year	Number of Fish
1995	27,000
1996	27,032
1997	9,800
1999	12,043
2000	14,244
2001	10,000
2002	10,546
2003	10,036
2004	10,013
2005	6,972
2006	75,248
2007	73,743
2008	76,901
2009	75,862
TOTAL	439,440

Recreational – Other Species

Crappie, Catfish and Sunfish-

Black and white crappies (*Pomoxis nigromaculatus and P. annularis*) have both been observed but not monitored in the river, as well as blue and channel catfishes (*Ictalurus furcatus* and *I. punctatus*) , bluegill, redear, spotted and warmouth sunfishes (*Lepomis macrochirus, L. microlophus, L. miniatus* and *L. gulosus,* respectively) . Lead net and hoop net sampling is scheduled in the future to further investigate these fish stocks.

Forage-

Forage availability is typically measured directly through electrofishing and shoreline seine sampling and indirectly through measurement of largemouth bass body condition or relative weight. Relative weight (Wr) is the ratio of a fish's weight to the weight of a ''standard'' fish of the same length. The index is calculated by dividing the weight of a fish by the standard weight for its length, and multiplying the quotient by 100. Largemouth bass Wr below 80 indicate a potential problem with forage availability. Relative weights of largemouth bass caught in the Blind River area ranged from 97 to 99 from 1997 to 2010 for all stock length-size and larger fish, indicating an adequate forage base (Figure 5). The mean Wr of largemouth bass from 1997 to 2010 is approximately 98 (Figure 3). This high Wr suggests that there is ample forage available for bass production. Fall electrofishing samples show that relative weights (Wr) of largemouth bass declined slightly after hurricane Gustav, but increased in the years following the storms (Figure 5). These changes in Wr, however, are slight.

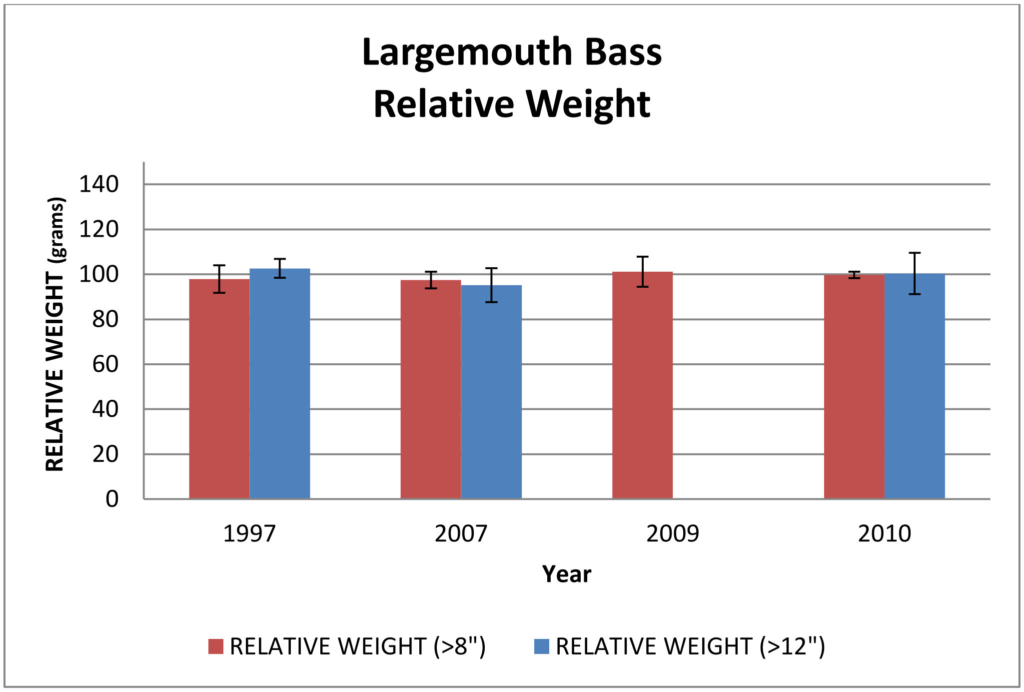

Figure 5. Mean relative weights for largemouth bass collected in fall electrofishing samples from Blind River, LA, for 1997 to 2010. Error bars represent 95% confidence limits of the mean relative weights.

Electrofishing samples from 2010 showed that the available forage was bluegill, redear, spotted and warmouth sunfishes, along with golden shiners (*Notemigonus crysoleucas*) (Figure 6).

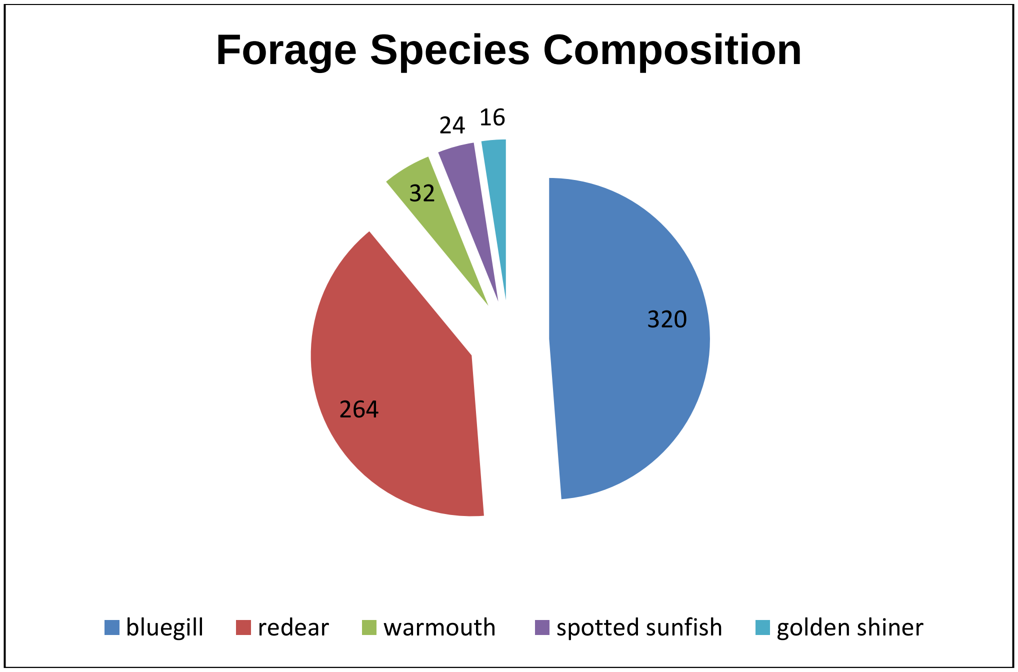

Figure 6. Forage composition in total numbers by species from fall electrofishing results on Blind River, LA, 2010.

Aquatic Invasive Species-

Though their population has not been monitored, common carp (*Cyprinus carpio*) are commonly observed in the river.

Asian carp have not been identified in the river but may have been introduced via the Bonne Carre Spillway operation by the US Army Corps of Engineers during the 2011 flood event.

HABITAT EVALUATION

Aquatic Vegetation

Common salvinia (*Salvinia minima*) is problematic in the backwater areas of the Blind River complex. These areas are characterized by stagnant water that allows for the establishment of floating invasive species. Foliar herbicide applications are used as needed to combat the growth of the salvinia. Salvinia weevils (*Cyrtobagous salviniae*) were stocked in 2008 and will continue to be stocked as they become available.

Water lilies (*Nymphaea spp*.) grow along much of the shallow shoreline of the river. Although the water lilies generally do not impair boating access, aquatic herbicide applications are routinely administered for control.

Water Quality

In 2006, the Environmental Protection Agency listed Blind River waters as impaired due to organic enrichment/depletion of oxygen, mercury, nitrates, sedimentation/siltation, total phosphorus, and turbidity. There were no potential sources reported and achievement of the total maximum daily loads was anticipated by 2011.

http://ofmpub.epa.gov/tmdl_waters10/attains_watershed.control?p_huc=08070204&p_cycle=&p_report_type=T

Substrate

Sandy river bottoms, high in inorganic material.

Artificial Structure

None

CONDITION IMBALANCE / PROBLEM

1. Lack of riverine influence has resulted in poor water quality conditions including: high organic load, low dissolved oxygen, stagnant backwaters that frequently flow into the river and saltwater intrusion from Lake Maurepas.

2. Blind River is very susceptible to major fish kills, especially in the event of a tropical storm or hurricane.

CORRECTIVE ACTION NEEDED

1. Restoration of Maurepas Swamp through diversions to improve water quality of Blind River.

2. Restoration of river flow into the system.

RECOMMENDATIONS

1. Seek opportunities for diversion of Mississippi River water into the Maurepas Swamp and Blind River system to restore historic natural seasonal water fluctuations.

2. Continue standardized sampling of fish populations to evaluate the condition of the stocks.

3. Continue to work with the Office of Coastal Protection and Restoration on proposed diversion projects.

4. Continue to control aquatic vegetation as needed through biological (weevil introductions) and chemical applications.